

Lecture 12.1

Criminal governance

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24 May 2021

Organized crime is arguably growing in global importance and influence

1. Cities with factionalized urban criminal gangs
 - ▷ Chicago, LA, Johannesburg, Nairobi, Cali
2. Cities and prison systems with large crime syndicates and cartels
 - ▷ Italian and US mafias, Brazilian prisons, Japanese Yakuza, Russian mob, San Salvador
3. Cities where powerful criminal structures challenge state authority
 - ▷ Rio, Medellin, San Salvador, Kingston, northern Mexico
4. Warlords/rebels focused on resource extraction
 - ▷ Nigeria, Eastern Congo
5. Political insurgencies funded by illicit trades
 - ▷ South American guerrillas & paramilitaries, Burmese insurgents, Islamic State, Taliban
6. Narco-states
 - ▷ Venezuela, Guinea-Bissau, some Mexican states and Afghan provinces

Wide range of questions

Up to now, crime literature has been individualistic in its focus

► Origins

- ▷ Why does organized crime arise in some places & not others? Why different forms?

► Governance

- ▷ Why do some criminal organizations govern civilians?
- ▷ Why are some extractive while others provide public goods and seek legitimacy?

► Industrial organization

- ▷ Why such wide variation in centralization?
- ▷ How to solve participation and incentive compatibility constraints?

► Durable impacts

- ▷ Effects on electoral competition, state strength, economic development

► Interventions

- ▷ What anti-organized crime strategies are effective?

Today

Organized crime as a response to the demand for governance

State-making as organized crime

Gang Rule in San Salvador

Gang Rule in Medellin

Contents

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An example: The Dark Web (Farrell 2018)





In anonymous markets, trust hard to maintain
If buyers are hesitant enough, sellers will have no-one to sell to,
and the market will fall apart

 **Silk Road**
anonymous market

messages 1 | orders 0 | account \$0.00


Search Go

a few words from the Dread Pirate Roberts 


Hi, [REDACTED] [logout](#) 

Shop by Category


- Drugs 4,093
 - Cannabis 999
 - Dissociatives 78
 - Ecstasy 314
 - Opioids 354
 - Other 153
 - Precursors 18
 - Prescription 903
 - Psychedelics 586
 - Stimulants 390
- Apparel 82
- Art 5
- Books 768
- Collectibles 15
- Computer equipment 42
- Custom Orders 27
- Digital goods 369
- Drug paraphernalia 153
- Electronics 35
- Erotica 296
- Fireworks 5
- Food 4
- Forgeries 55
- Hardware 1
- Herbs & Supplements 11
- Home & Garden 6
- Jewelry 57




5G Cocaine Pure Cistal Flakes
\$41.94




[28.0G] High Quality Crystal Meth
\$188.72




>>SPECIAL OFFER " BRAND SUBOXONE
\$0.91




alprazolam [Xanax] 100 x 1mg
\$11.31




Cocaine of high quality over 80% purity 25 gram
\$190.12







"Ethylphenidate" -2.5g- of the best racemic HCl qit
\$6.18



Colombian Cocaine Lady's and Gentleman 10G
\$67.32



0.5g #3 Brown Heroin, good quality!
\$7.52

News

- Closing the Armory
- A brand new look for Silk Road!
- The gift that keeps on giving
- Who's your favorite?
- Acknowledging Heroes

A well functioning market needs intermediaries to provide information, guarantee contracts & reduce other transaction costs

Anonymous commenter on dark Internet market :

I have been scammed more than twice now by assholes who say theyre legit when I say I want to purchase stolen credit cards. I want to do tons of business but I DO NOT want to be scammed. I wish there were people who were honest crooks. If anyone could help me out that would be awesome! I just want to buy one at first so I know the seller is legit and honest.

Libertarian Ross Ulbricht of Texas, a.k.a. “Dread Pirate Roberts”

Sets out to build a market free from the thieving and murderous state

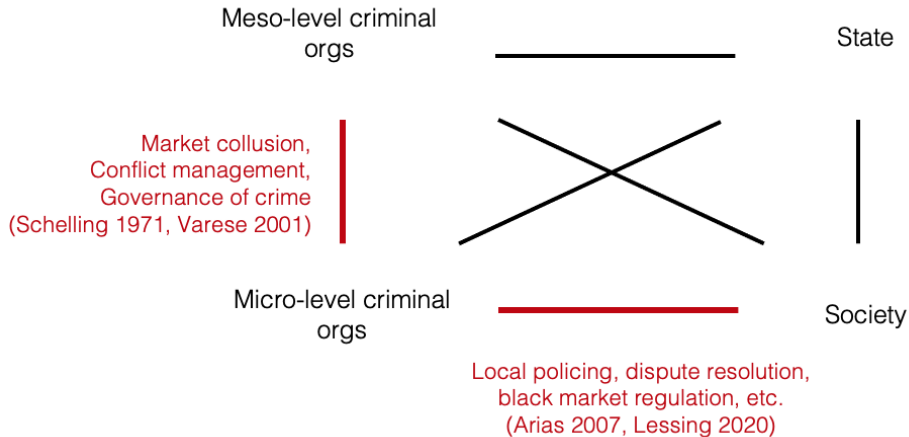


To keep Silk Road from unraveling, Ulbricht develops centralized market management, defense, adjudication and punishment

- ▶ Introduced automated rating system and payment in escrow to establish credibility
- ▶ Began policing the system, banning untrustworthy buyers and sellers
- ▶ Paid hundreds of thousands of dollars to stave off denial-of-service attacks that threatened to cripple his website
- ▶ Eventually, turned to violence. One seller, FriendlyChemist, threatened to leak the names of all its customers, threatening credibility of Silk Road

He paid \$150,000 to someone whom he believed to be senior member of the Hell's Angels to arrange for the murder of his blackmailer, later paying another \$500,000 to have associates of FriendlyChemist murdered too.

Dimensions of criminal governance



The Sicilian mafia has similar origins in regulating illicit markets

Gambetta 1993 on Sicily's black market for cattle

- ▶ State decides to collect high taxes on the sale of cattle from ranchers to butchers
 - ▷ Drives buyers and sellers into a black market where there is no state to enforce contracts
- ▶ There's also little trust
 - ▷ Buyers can't trust the quality of the seller's cow, and sellers can't trust buyers to pay
 - ▷ i.e. poorly functioning informal institutions
- ▶ This is a common set of roots
 - ▷ State creates a space of lax enforcement, which fosters demand for reducing transaction and enforcement costs, and informal institutions are too weak to fill the need

The mafia is born (Gambetta 1993)

- ▶ A local “big man” steps in to provide information to each side and guarantee the sale
- ▶ Solves problems that state and society do not
 - ▷ Provide information to each side (reduces transaction costs)
 - ▷ Guarantee the sales (enforces property rights, provides “commitment”)
- ▶ May also enforce contracts with threat of violence
- ▶ This is a lubricant to the market, reducing the cost of transactions

A huge Sicilian mafia literature on this question

- ▶ Mafias grow out of a demand for private protection
 - ▷ Partly due to low levels of trust and social capital
 - ▷ Partly due to (endogenous) low state presence
- ▶ Gambetta (1993): Not enough to have low trust and state, also need:
 - ▷ Ready labor supply of those trained in violence
 - ▷ Dense number of transactions (urban) as well as markets
 - ▷ Structure of production that there are economies of scale in protection
- ▶ A number of economics papers emphasize effect of economic stocks or shocks on the demand for protection:
 - ▷ Bandiera (2003): Land reform increased number of land owners
 - ▷ Dimico et al. (2017): Presence and revenue spike in citrus, due to vulnerability to vandalism and litigation
 - ▷ Del Monte and Pennacchio (2012) and Buonanno et al. (2015): Presence of rich mines

Acemoglu, De Feo & De Luca 2020 RESTUD build on these literatures

First, they try to explain variation in mafia presence in 1900

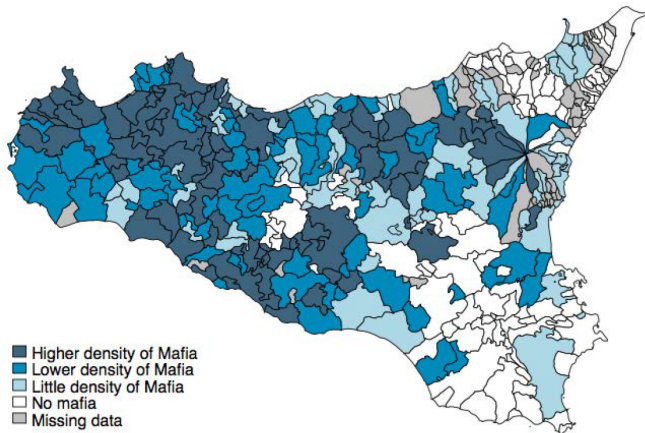


Figure 3: Mafia intensity in 1900 according to the Police inspector Cutrera. Source: Cutrera (1900).

Mafia presence was much lower 1–2 decades before

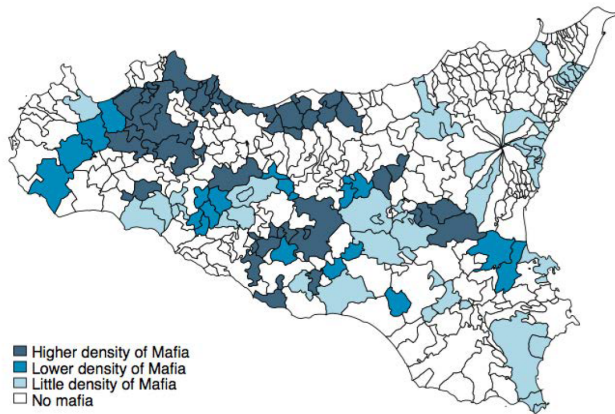


Figure 4: Spatial distribution of the Mafia presence according to its intensity as reported in Damiani (1885).

They trace to the emergence of peasant movements against landlords, and the demand for private protection from powerful elites

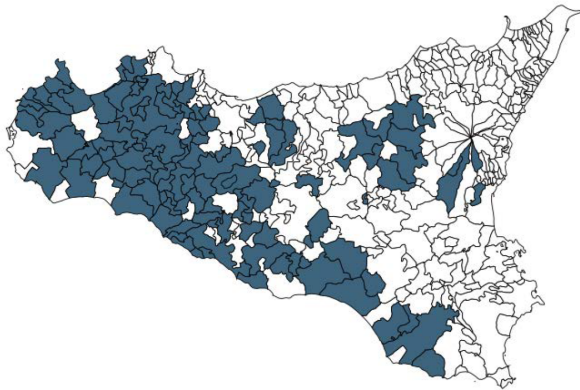


Figure 1: Presence of Peasant Fasci organizations in Sicily in the period 1893-4. Source: Renda (1977).

Use an 1893 drought to instrument for peasant movement

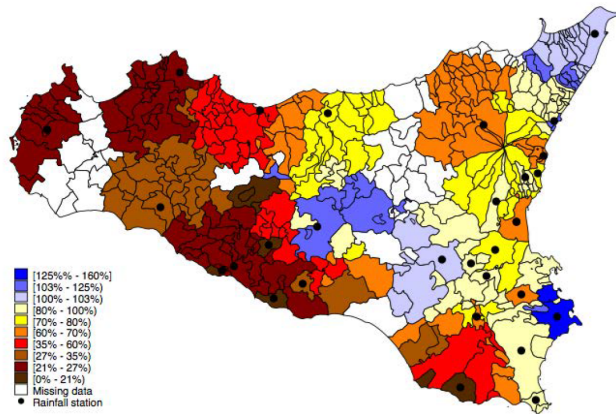


Figure 2: Drought intensity in spring 1893. Ratio of the rainfall in spring 1893 to long-run average spring rainfall.

“Medium-run” impacts of mafia presence: 2SLS results

Table 9: The Impact of Mafia on State Capacity and Politics

Dependent variable:	Infant mortality in 1909			Aqueduct in 1909			Development Expenditure 1912			HHI in 1909		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: IV results												
Mafia 1900	0.04 (0.02)	0.04 (0.02)	0.05 (0.02)	-0.06 (0.10)	-0.05 (0.05)	-0.12 (0.13)	-2.31 (1.10)	-2.02 (0.96)	-1.44 (0.86)	0.40 (0.17)	0.32 (0.14)	0.30 (0.13)
Panel B: OLS results												
Mafia 1900	0.006 (0.002)	0.006 (0.002)	0.004 (0.002)	0.01 (0.02)	0.00 (0.02)	0.01 (0.02)	0.04 (0.16)	0.01 (0.16)	0.02 (0.14)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)
Province FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Determinants of Fasci	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Determinants of Mafia		✓	✓		✓	✓		✓	✓		✓	✓
Geographic controls			✓			✓			✓			✓
Observations	243	243	243	245	245	245	245	245	245	242	242	242

What do we learn?

- ▶ Partly a cute instrument and an fascinating dependent variable
- ▶ Arguably, important because...
 - ▷ Illustrates the persistence of “extractive” institutions and the endogenous preservation of these coercive, criminal privileges through the democratic system
 - ▷ If there is a pre-existing presence of a group that has a comparative advantage in violence, circumstances (exogenous shocks) can give it an opportunity to expand
- ▶ Harder to speak to theories of origins and persistence:
 - ▷ Sicilian mafia filled the void created by a weak state?
 - ▷ Mafia also a product of unusually low social capital and cooperative institutions & trust
 - ▷ In democracies, persistent because mafia captures politicians, & using violence to influence elections
 - ▷ May also (unconsciously?) undermine social trust, increasing demand for services

So much focus on Sicily has disadvantages for the literature

- ▶ Mafia presence is overdetermined
 - ▷ Doesn't help answer "what shocks matter" or "what opportunities lead to armed group rise"
 - ▷ e.g. many places get droughts, maybe many of these places have armed groups
- ▶ A better question might be: What is our model of emergence and perpetuation of criminal orgs?
 - ▷ Why do so many weak states not have mafias?
 - ▷ What are the armed group characteristics or environments that are more conducive to this form of economic and political organization?
 - ▷ What are alternatives to mafia rule and how do they develop

Contents

Organized crime as a response to the demand for governance

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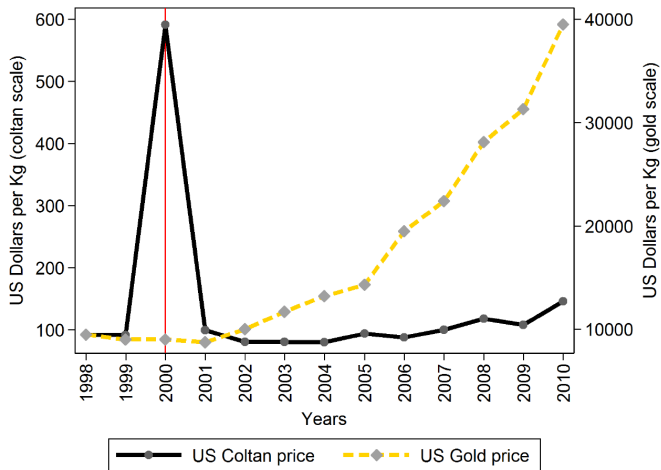
Gang Rule in Medellin

Sanchez de la Sierra 2020



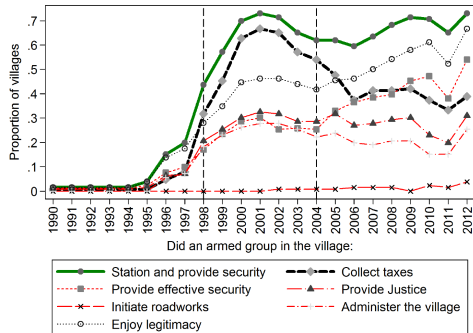
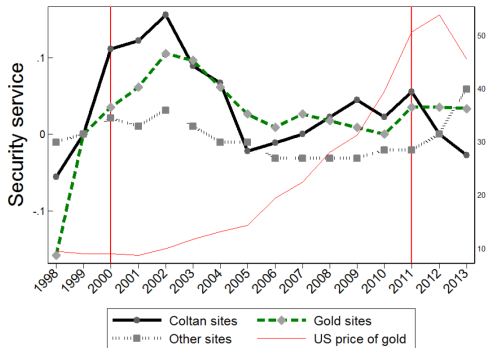
Looks at how incentives to provide protection shift with exogenous shocks

Examines response to gold & coltan shocks, each with different ease of rent-extraction



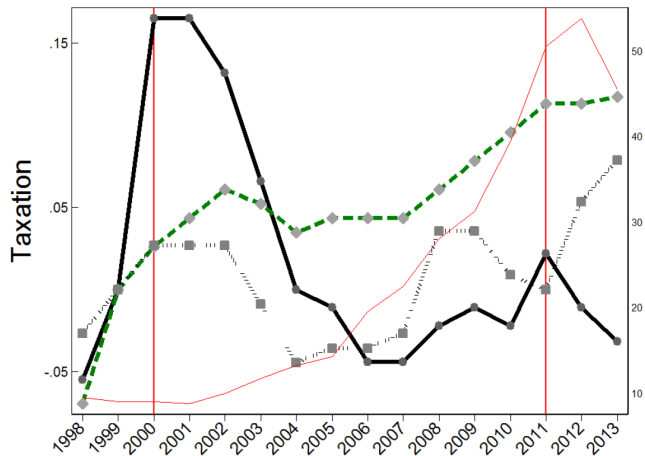
Impacts on public goods (security) by stationary bandits

Leads to governance in production areas for the easy-to-observe product only



Impacts on taxation

Invest over time in fiscal capacity in gold-spending (not gold production) village



Impacts contrast to the mafia we just discussed

- ▶ Here, however, the effect of “criminal rule” was positive. Why might that be?
- ▶ What might explain the variation?

Impacts contrast to the mafia we just discussed

- ▶ Here, however, the effect of “criminal rule” was positive. Why might that be?
- ▶ What might explain the variation?
 1. Depends on counterfactual governance
 - ▶ Anarchy?
 - ▶ Democratic and bureaucratic rule?
 2. Depends on bandit's incentives
 - ▶ Provide order, public goods, promote growth?
 - ▶ Extract maximum rents?
 - ▶ Plunder temporarily?

Echoes historical statebuilding literature

Most early states were coercive, self-serving entrepreneurs

Charles Tilly (1985): “War making and state making as organized crime”:

“Banditry, piracy, gangland rivalry, policing, and war making all belong on the same continuum”

- ▶ Much like an organized crime racket, states are in the business of selling protection
 - ▷ A state supplies reliable, low-priced shielding both from other bandits
 - ▷ They secure the rights of the powerful in return for a degree of extraction
 - ▷ Such protection rents are the major basis of revenue for most states until the modern period

- ▶ BUT contracting problems lead to predation, fighting and warfare
 - ▷ Common pool resource problem among bandits
 - ▷ Agency problem too – do not internalize broader gains from stability

Mancur Olson (1993): The stationary bandit is a solution to a common pool resource problem

...government for groups larger than tribes normally arises, not because of social contracts or voluntary transactions of any kind, but rather because of rational self-interest among those who can organize the greatest capacity for violence.

These violent entrepreneurs naturally do not call themselves bandits but, on the contrary, give themselves and their descendants exalted titles.

- ▶ “Roving bandits” plunder, “stationary bandits” provide order and extract/tax a share
- ▶ Sanchez de la Sierra: Bandits switched from roving to stationary when returns to Olsonian extraction exceeded returns to plunder
 - ▷ Depended on value and observability of output (ease of taxation)

Organized crime as a response to the demand for governance

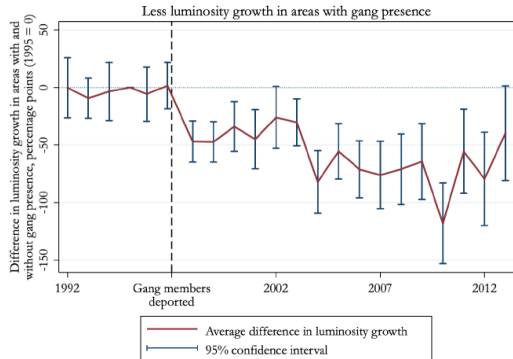
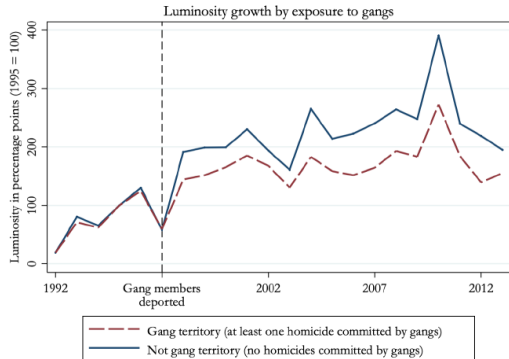
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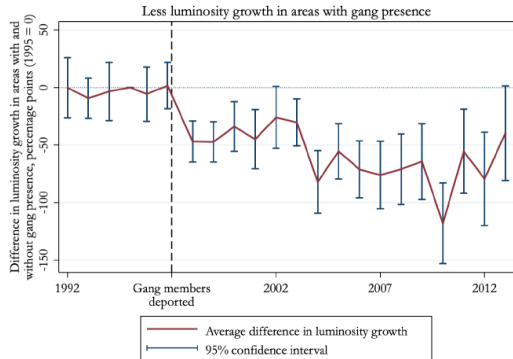
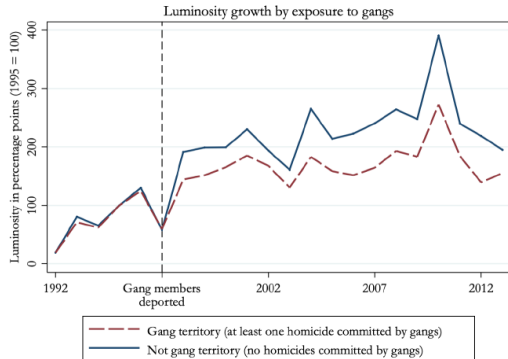
Melnikov et al 2020: Effect gang control in El Salvador

Development hindered by these gangs. If true, why might that be?



Melnikov et al 2020: Effect gang control in El Salvador

Development hindered by these gangs. If true, why might that be?



► Is it counterfactual governance quality? Extractive rule? Both?

Thoughts on the paper?

- ▶ Novelty
- ▶ How does this advance the field?
- ▶ Generalizability / External validity
- ▶ Adequacy and appropriateness of theory
- ▶ Data and measurement
- ▶ Empirical strategy and internal validity
- ▶ Consistency and robustness of results

What is the treatment here?

What is the treatment here?

- ▶ “Governance” and rule is a fundamentally heterogeneous treatment
 - ▷ This is why we see differences in impacts in Sicily, DRC, etc
- ▶ If we were studying the effect of exposure to state rule, we’d ask “what kind of state”?
 - ▷ A coercive and extractive one? A well-functioning, public goods providing one?
 - ▷ e.g. Exposure to police
- ▶ In this specific case, what are the motives of the gangs here? We are left guessing.
 - ▷ Is this profit maximizing behavior?
- ▶ Institutional detail crucial for external validity, but hard to do with clandestine groups
 - ▷ Economists tend to lean heavily on sociology and other sources, but does not always exist

An incredibly novel paper and contribution, with credible results, but...

1. I worry a little about overprecision

- ▷ In few cities do we know gang boundaries to 50m
- ▷ Endogeneity of borders?
 - ▶ Why would gangs have discontinuous presence if they do not border a competing group?
 - ▶ Are borders selected by gang endogenously?

2. Spillover effect of gang?

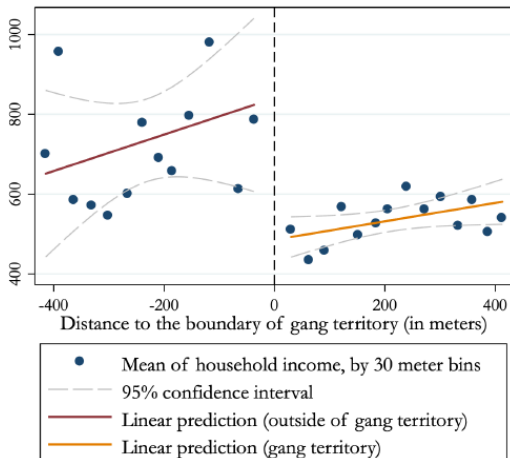
- ▷ What's the effect of having a really bad gang right next door? (Maybe a question of external validity only)

3. Seldom does one mechanisms have to have an R^2 of 1

- ▷ Discounts alternatives, e.g. selective migration, public good provision, fewer businesses, ...
- ▷ But all surely play some role

e.g. Not clear why we should see a slope on either side of border
Increased services for captured population?

Figure 7: Household income after 22 years of gang control



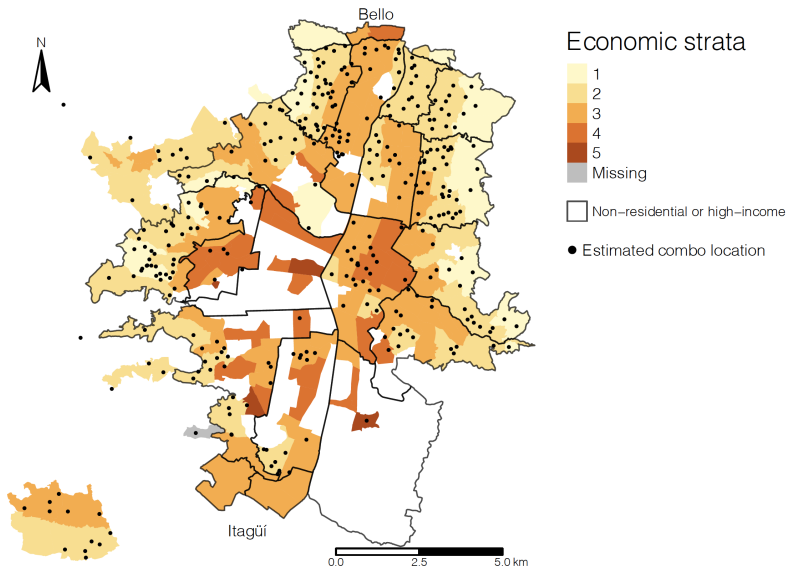
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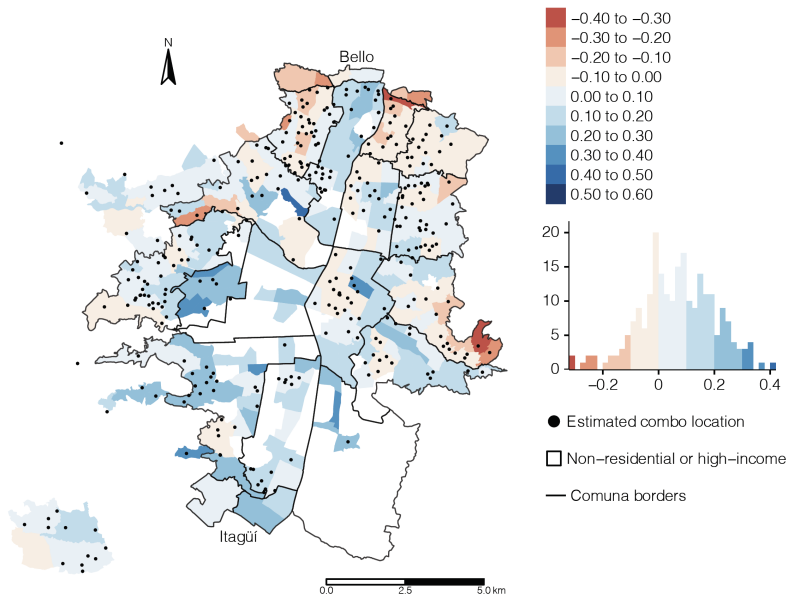
Virtually every low- and middle-income neighborhood has a combo



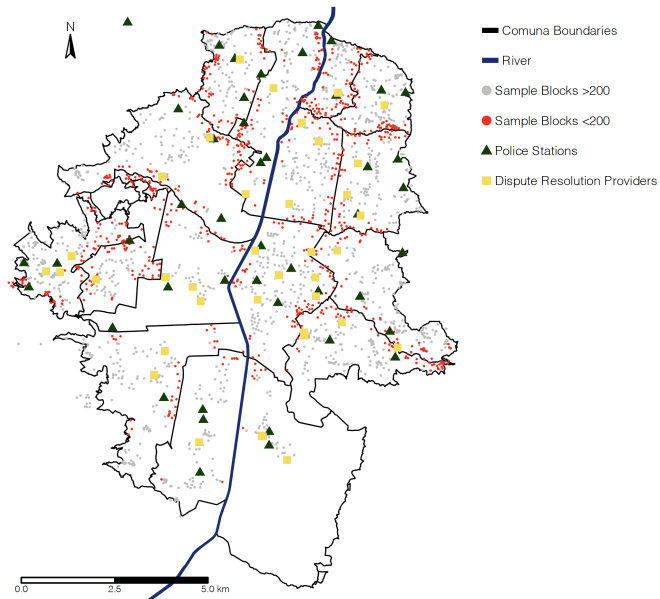
A duopoly of coercion and security provision in most neighborhoods

	Frequency/Rate (0-1 Scale)				Relative State Governance
	State		Combo		Difference
	Estimate (1)	SD (2)	Estimate (3)	SD (4)	
Governance Index	0.41	0.27	0.33	0.29	0.08
How often they intervene when:					
HH: Someone is making noise	0.42	0.38	0.19	0.30	0.23
HH: Home improvements affect neighbors	0.41	0.37	0.24	0.33	0.16
HH: There is domestic violence	0.50	0.37	0.33	0.37	0.16
Biz: Someone disturbs a business	0.50	0.38	0.36	0.38	0.14
HH: Two drunks fight on the street	0.52	0.36	0.39	0.37	0.13
Biz: You have to react to a robbery	0.53	0.37	0.39	0.39	0.13
Biz: It is necessary to prevent a theft	0.46	0.36	0.37	0.39	0.09
Biz: Businesses in this sector are robbed	0.43	0.39	0.35	0.38	0.07
HH: A car or motorbike is stolen	0.47	0.37	0.41	0.38	0.05
HH: People smoking marijuana near children	0.30	0.36	0.25	0.36	0.05
HH: You have to react to a robbery	0.46	0.36	0.44	0.38	0.02
HH: Someone is threatening someone else	0.41	0.36	0.40	0.37	0.01
HH: Someone is mugged on the street	0.39	0.36	0.40	0.38	-0.01
HH: It is necessary to prevent a theft	0.39	0.36	0.41	0.38	-0.02
HH: Kids fight on the street	0.28	0.35	0.31	0.36	-0.03
Biz: Someone does not want to pay a debt	0.18	0.31	0.24	0.35	-0.06
HH: Someone refuses to pay a big debt	0.21	0.31	0.36	0.37	-0.16

Averages conceal high variation across neighborhoods



Natural experiment: Reorganization of state service boundaries in 1987



Estimating equation

- We use the following OLS regression:

$$\Delta Y_{ij} = \beta_0 + \beta_1 \Delta DistLocState_{ij} + \beta_2 \Delta DistOther_{ij} + \Theta \Delta X_{ij} + \eta_b + f(lat_i, long_i) + f(lat_j, long_j) + \epsilon_i$$

where:

- ▷ ΔY_{ij} is the within-pair outcome difference
- ▷ $\Delta DistOther_{ij}$ is a vector of differences in the distance to other amenities
- ▷ ΔX_{ij} is a vector of differences in demographic and geographic covariates
- ▷ η_b are comuna border fixed effects
- ▷ $f(lat_i, long_i)$ and $f(lat_j, long_j)$ are first-degree polynomials of the coordinates (Keele and Titiunik, 2015)

Results on governance and legitimacy

		ΔY sample mean	Correlation with $\Delta StateDist$	Correlation with $\Delta StateDist$ (as sample sd)
	Subsample Mean (SD)	Estimate (SE)	Estimate (SE)	Estimate (SE)
	(1)	(2)	(3)	(4)
Relative State Governance Index	0.08 (0.24)	0.013 (0.304)	-0.002 (0.006)	-0.006
State Governance Index	0.42 (0.19)	-0.033 (0.272)	-0.019*** (0.005)	-0.101
Combo Governance Index	0.33 (0.22)	-0.033 (0.278)	-0.014** (0.005)	-0.065
Relative State Legitimacy Index	0.14 (0.24)	0.050 (0.328)	-0.009 (0.007)	-0.036
State Legitimacy Index	0.57 (0.15)	-0.021 (0.224)	-0.014*** (0.005)	-0.094
Combo Legitimacy Index	0.43 (0.21)	-0.051 (0.287)	-0.007 (0.006)	-0.036
N for Governance outcomes		532	531	531
N for Legitimacy outcomes		406	404	404

► How do we understand the difference from the Sicilian mafia and the Salvadoran gangs?

Why do combos say they govern in Medellin?

1. Protection as a business line

- ▷ For some combos, governance services yield significant revenue
- ▷ For debt collection or dispute resolution, combos charge on a fee-for-service basis
- ▷ For security services, revenues are akin to semi-voluntary taxes or a subscription

2. Indirect impacts on other business lines

- ▷ Governing helps protect the gangs physical security and illicit income
 - ▶ Providing order wins the loyalty of residents, who do not inform on combos to police
 - ▶ Providing order also directly reduces police presence
- ▷ This motive is potentially the most important

3. Intrinsic rewards

- ▷ Power, authority, and the loyalty of subjects can be their own reward

Quotes

"There is always a police presence, but combos strike non-interference deals with the regular beat cops. When public order gets disrupted, the police must act and officers not part of the deal arrive. The area becomes visible and combos activities become more vulnerable" *Criminal Group Leader 24/29, interview 5/5 [12/14/2020]*

"Personally, doing good work feels good. You can be the worst bandit, but you can also have a good heart of your own" *Criminal Group Member 6/31, interview 2/3 [02/11/2020]*

Governance as a oligopolistic good (Cournot competition)

- ▶ A gang g and a state s offer distinct but substitutable services in quantities q_g and q_s with constant marginal cost c_i
- ▶ Each organization i 's utility function as:

$$V_i = p_i q_i - c_i q_i$$

- ▶ Price is determined by a linear inverse demand curve:

$$p_i = a_i - \beta q_i - \gamma q_j$$

where $\gamma \in (0, 1]$ implies services are substitutes, and $\beta > 0$ for downward-sloping demand

Most imperfect competition models predict crowding out of governance

- ▶ We are interested in whether gang rule is crowded in or out when there is an exogenous increase in state governance: $\frac{\partial q_g^*}{\partial q_s}$
- ▶ We show that :

$$\frac{\partial q_g^*}{\partial q_s} = -\frac{\gamma}{2\beta} \quad (1)$$

So long as the two services are not complements, this comparative static implies that increases in one duopolist's supply of protection will reduce the other's

Introducing Olsonian motives to governing

- ▶ Gang leaders described additional benefits to governing beyond the money it brings in as a business line
- ▶ We summarize these diverse motives by adding a stylized term to the players' objective functions:

$$V_i = p_i q_i - c_i q_i + \rho(q_i, q_j) \pi_i$$

where:

- ▶ π_i is the return to full control of the neighborhood, e.g., π_g includes retail drug sales
- ▶ $\rho(\cdot)$ scales each organization's ability to enjoy these benefits, e.g., the share of π_i such that:
$$\frac{\partial \rho(q_i, q_j)}{\partial q_i} > 0 > \frac{\partial \rho(q_i, q_j)}{\partial q_j}$$

Introducing additional benefits to governing

- The elasticity of gang governance to state governance now becomes:

$$\frac{\partial q_g^*}{\partial q_s} = \frac{\lambda \pi_g - \gamma}{2\beta - \delta \pi_g}$$

where:

- $\lambda = \frac{\partial^2 \rho(q_g, q_s)}{\partial q_g \partial q_s}$ represents the cross-partial derivative between gang and state governance
- $\delta = \frac{\partial^2 \rho(q_g, q_s)}{\partial q_g^2}$ reflects the rate of increasing or decreasing returns to governing

Some channels by which more state governance could crowd gangs in

1. Strategic response to state rule by the combo ($\lambda\pi_g > \gamma$)
 - ▷ Corresponds the closest to gang leader interviews
 - ▷ When the state increases protection, they threaten the gangs' share of rents
2. Increasing returns to a gang's own level of governance ($\delta\pi_g > 2\beta$)
 - ▷ Qualitatively, we saw no evidence of this
 - ▷ Could arise if residents reward protection with loyalty at increasing rates
3. State rule increases general demand for governance
 - ▷ Outside of $\rho(\cdot)\pi_i$, there may be endogenous demand for protection
 - ▷ In the Cournot example, we could model endogenous growth through writing a_i as an increasing function of q_s

A case for “economic ethnography” and descriptive analysis

- ▶ Systematic, methodologically “rigorous” qualitative data collection & analysis aims to reduce common forms of bias
 - ▷ Especially tendency to extrapolate from small samples and salient examples
 - ▷ Crime and development economists already to do a lot of *informal* qualitative work
 - ▷ Optimal amount of more systematic qualitative work should probably not be 0%
- ▶ Informed by theory and also helping to generate theory
 - ▷ This is chief difference from most non-economics ethnography, which tends to be quite critical of economic reasoning and models
- ▶ Examples (in addition to ones we have seen):
 - ▷ Leeson (2007) on pirate democracies in *JPE*
 - ▷ Skarbek (2011) on prison gangs in *APSR*
 - ▷ Levitt & Venkatesh in *QJE* (next class)

Observations on Acemoglu et al 2020

- ▶ Sample selection: $N=245$ of 333 areas
 - ▷ Would be good to confirm that missingness is uncorrelated with M , F or R (where data available) and examine correlation with available X
- ▶ What is the best way to operationalize a rainfall shock?
 - ▷ Linear versus non-linear?
- ▶ Some of the data deserve more scrutiny and discussion of possible misreporting and error
 - ▷ Mafia presence in 1900 result of a single police officer's research
 - ▷ Pre-1893 mafia presence self-reported by local officials

Two reduced-form estimates, γ , on the origins of the mafia:

$$F_i = \gamma^F R_i^{1893} + X_i' \beta^F + \epsilon_i^{Fasci}$$

$$M_i = \gamma^M R_i^{1893} + X_i' \beta^M + \epsilon_i^M$$

And two 2SLS estimates, α , where R is used as an instrument for F and M in order to identify the effects of the Fasci on Mafia, and Mafia on long term outcomes y .

$$M_i = \alpha^M F_i + X_i' \beta^M + \epsilon_i^M$$

$$y_i = \alpha^y M_i + X_i' \beta^y + \epsilon_i^y$$

A good paper to teach because there are substantive lessons as well as lessons on identification with IV and conditional unconfoundedness

Recall the criteria for a valid instrument

Simplifying (e.g. adjusting Mafia, Fasci and Rainfall for covariates):

$$M = \alpha F + e$$

$$F = \gamma R + \mu$$

then

$$\hat{\alpha}_{IV} = \text{Cov}(M, R) / \text{Cov}(F, R)$$

► Criteria for a valid instrument:

1. Strong first stage (i.e. $\gamma \neq 0$)
2. Exogenous (as good as randomly assigned, conditional on covariates)
3. Exclusion restriction: R only affects M through F
4. Monotonicity (no defiers)

► Customary to focus on 3, but first I want us to pay attention to 2

At first glance the first stage looks good

Table 2: The Impact of Relative Rainfall 1893 on Peasant Fasci

Dependent variable: Peasant Fasci				
	(1)	(2)	(3)	(4)
Panel A: without province fixed effects				
Relative Rainfall 1893	-1.00 (0.13)	-0.95 (0.13)	-0.94 (0.14)	-0.79 (0.22)
Panel B: with province fixed effects				
Relative Rainfall 1893	-0.76 (0.21)	-0.84 (0.25)	-0.77 (0.26)	-0.76 (0.27)
Determinants of Fasci		✓	✓	✓
Determinants of Mafia			✓	✓
Geographic controls				✓
Observations	245	245	245	245

$$\mu_R = .64, \sigma_R = .28, \text{ range } 0.6\text{--}1.28$$

$$\mu_F = .31, \sigma_F = .46, \text{ range } 0\text{--}1$$

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FE and controls have only a modest effect on estimates (as we would expect from an exogenous shock) and we observe similar γ estimates in B1, A4 and B4

But is $R_i^{1893} \perp \epsilon_i^{Mafia}$?

Table 4: Relative Rainfall 1893 and Mafia

Dependent variable: Mafia 1900				
	(1)	(2)	(3)	(4)
Panel A: without province fixed effects				
Relative Rainfall 1893	-2.06 (0.45)	-1.99 (0.40)	-1.84 (0.37)	-1.32 (0.35)
F-statistic	20.72	24.74	25.23	14.06
Panel B: with province fixed effects				
Relative Rainfall 1893	-0.66 (0.34)	-0.87 (0.29)	-1.01 (0.30)	-1.14 (0.39)
F-statistic	3.80	9.21	11.54	8.73
Determinants of Fasci		✓	✓	✓
Determinants of Mafia			✓	✓
Geographic controls				✓
Observations	245	245	245	245

$\mu_R = .64, \sigma_R = .28, \text{range } 0.6\text{--}1.28$

$\mu_M = 1.43, \sigma_M = 1.15, \text{range } 0\text{--}3$

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A HUGE drop in γ from adding FE or controls to a supposed exogenous shock (although A4 and B4 estimates similar). Perhaps $RelativeRainfall_i^{1893} | X \perp \epsilon_i^{Mafia} | X$?

What is the consequence of an unobservable W correlated with rainfall and mafia presence?

$$M = \alpha F + e$$

$$F = \gamma R + \mu$$

where $e = \pi W + v$ and $v \perp R$ then

$$\begin{aligned}\hat{\alpha}_{IV} &= \text{Cov}(M, R) / \text{Cov}(F, R) \\ &= \text{Cov}(\alpha F + e, R) / \text{Cov}(F, R) \\ &= \alpha + \text{Cov}(e, R) / \text{Cov}(F, R) \\ &= \alpha + \pi \text{Cov}(W, R) / \text{Cov}(F, R) + \text{Cov}(v, R) / \text{Cov}(F, R) \\ &= \alpha + \pi \frac{\text{Cov}(W, R)}{\text{Cov}(F, R)}\end{aligned}$$

This logic holds for violations of the exclusion restriction through W as well.

Predictable bias

$$\hat{\alpha}_{IV} = \alpha + \frac{\text{Cov}(W, M)}{\text{Var}(W)} \frac{\text{Cov}(W, R)}{\text{Cov}(F, R)}$$

Thus if $R \mid X$ is not independent of the error term in Table 4, we expect that:

- ▶ Any bias is increasing in the weakness of the instrument, $\text{Cov}(F, R)$ (not a huge concern in this case)
- ▶ We will tend to *overstate* α if $\text{Cov}(W, M) > 0$ and $\text{Cov}(W, R) > 0$
 - ▷ e.g. Historical drought propensities and market relationships with Palermo both associated with increased mafia presence
- ▶ We will tend to *understate* α if $\text{Cov}(W, M) < 0$ and $\text{Cov}(W, R) > 0$
- ▶ This was the rationale for including so many controls

And note that $R_i^{1893} \perp \epsilon_i^{Mafia}$ is
fundamental to the empirical strategy

$$y_i = \alpha^y M_i + X_i' \beta^y + \epsilon_i^y$$
$$M_i = \gamma^M R_i^{1893} + X_i' \beta^M + \epsilon_i^{Mafia}$$

There are two key identification assumptions:

1. Conditional unconfoundedness in the first stage (they have all the relevant X 's, and there are no remaining W 's)
2. The exclusion restriction: The 1993 drought affects long run outcomes only through mafia presence not through other lasting economic, demographic, or political changes

for 1, it would be useful to see regression of M on X and R on X to understand endogeneity and what is driving coefficient change

An underused method of sensitivity analysis (Imbens 2003)

- ▶ We are worried about the case where $\text{Cov}(W, M) \neq 0$ and $\text{Cov}(W, R) \neq 0$
- ▶ We can benchmark this by looking at what the observed X 's do to our estimates
- ▶ Imbens plots these values (in partial R^2) alongside a curve beyond which the X would have reduced the γ by half

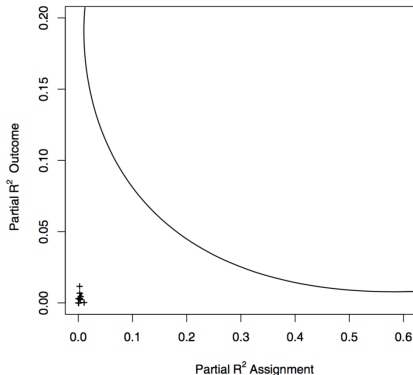


Figure 1: Replication of Imbens's Figure 1.

Other comments on Melnikov et al 2020

► Migration

- ▷ There is a long history of people evading a controlled border to escape a coercive state, and would be shocking if MS-13 were better at this
- ▷ Is stability of 4/5 of residents what we care about? Effects come from the marginal migration decision. Who were they?
- ▷ Not clear why density test near border is testing this (especially if living near the border on state side is unattractive)
- ▷ Whose immigration matters? Business or resident?
- ▷ Why would a gang have a discontinuous presence if they do not border another gang defending those borders?
- ▷ If gangs are selecting borders, how exogenous can borders be?
- ▷ Important for internal and external validity of the RD

► Gang presence = homicide rate

- ▷ Is this actually an indicator of weak gang control? We should not see high homicides in equilibrium in unconsted areas where gang rule greatest.